

AMENDMENTS TO THE CLAIMS

(IN FORMAT COMPLIANT WITH THE REVISED 37 CFR 1.121)

Please cancel claims 3 and 4 without prejudice.

1. (CURRENTLY AMENDED) An apparatus comprising:

a first processing circuit configured to generate a plurality of reconstructed samples in response to one or more macroblocks of an input signal; and

5 a second processing circuit configured to determine availability of intra 4 x 4 prediction modes for each luma sub-block of a current macroblock in response to available reconstructed samples adjacent to said current macroblock, wherein
10 (i) an intra 4 x 4 prediction mode 3 and an intra 4 x 4 prediction mode 7 are indicated as available when a first group of said reconstructed samples only adjacent to a top edge of a current luma sub-block of said current macroblock is available and a second group of said reconstructed samples only adjacent to a left edge of said current luma sub-block is not available and (ii) an intra 4 x
15 4 prediction mode 8 is indicated as available when said first group of said reconstructed samples only adjacent to said top edge of said current luma sub-block is not available and said second group of said reconstructed samples only adjacent to said left edge of said current luma sub-block is available.

2. (CURRENTLY AMENDED) The apparatus according to claim 1, wherein said second circuit is further configured to indicate availability of ~~an~~ said intra 4 x 4 prediction ~~mode~~ modes 3, 7 and 8 for each of said luma sub-blocks ~~in response to (i) a~~ when both
5 said first group of said reconstructed samples adjacent to ~~a~~ said top edge of said current luma sub-block ~~being available~~ and ~~(ii)~~
~~both said first group and a~~ said second group of said reconstructed samples adjacent to ~~a~~ said left edge of said current luma sub-block ~~being~~ are available.

3. (CANCELED)

4. (CANCELED)

5. (ORIGINAL) The apparatus according to claim 1, wherein said second processing circuit is implemented in a decoding loop of an encoder.

6. (ORIGINAL) The apparatus according to claim 1, wherein said first processing circuit and said second processing circuit comprise a decoder.

7. (ORIGINAL) The apparatus according to claim 1, wherein said apparatus comprises an H.264 decoder.

8. (CURRENTLY AMENDED) The apparatus according to claim 1, wherein said second processing circuit comprises:

an intra prediction circuit configured to generate an intra predicted luma sub-block in response to said available reconstructed samples ~~being~~ adjacent to a single edge of said current luma sub-block.

9. (CURRENTLY AMENDED) The apparatus according to claim 8, wherein said second processing circuit further comprises:

a control circuit configured to generate one or more control signals in response to (i) ~~a~~ said first group of said reconstructed samples adjacent to a top edge of said current luma sub-block being available, (ii) ~~a~~ said second group of said reconstructed samples adjacent to a left edge of said current luma sub-block being available and (iii) both said first group and said second group of said reconstructed samples being available.

10. (CURRENTLY AMENDED) The apparatus according to claim 9, wherein said control circuit is further configured ~~to~~ to determine a position of said top edge and said left edge of said current luma sub-block.

11. (CURRENTLY AMENDED) The apparatus according to claim 10, wherein ~~(i)~~ said first group of said reconstructed samples

~~comprise~~ comprises a plurality of reconstructed samples in a line adjacent to said top edge of said current luma sub-block.

12. (CURRENTLY AMENDED) The apparatus according to claim 10, wherein (i) said second group of said reconstructed samples comprises a plurality of reconstructed samples in a line adjacent to said left edge of said current luma sub-block.

13. (CURRENTLY AMENDED) An apparatus comprising:

means for generating a plurality of reconstructed samples in response to one or more macroblocks of an input signal; and

means for determining availability of intra 4 x 4 prediction modes for each luma sub-block of a current macroblock in response to available reconstructed samples adjacent to said current macroblock, wherein (i) an intra 4 x 4 prediction mode 3 and an intra 4 x 4 prediction mode 7 are indicated as available when a first group of said reconstructed samples only adjacent to a top edge of a current luma sub-block of said current macroblock is available and a second group of said reconstructed samples only adjacent to a left edge of said current luma sub-block is not available and (ii) an intra 4 x 4 prediction mode 8 is indicated as available when said first group of said reconstructed samples only adjacent to said top edge of said current luma sub-block is not available and said second group of said reconstructed samples only

adjacent to said left edge of said current luma sub-block is available.

14. (CURRENTLY AMENDED) A method for intra prediction of a luma sub-block comprising the steps of:

(A) generating a plurality of reconstructed samples in response to one or more macroblocks of an input signal; and

5 (B) determining availability of ~~one or more~~ intra 4 x 4 prediction modes for each luma sub-block of a current macroblock in response to available reconstructed samples adjacent to said current macroblock, wherein (i) an intra 4 x 4 prediction mode 3 and an intra 4 x 4 prediction mode 7 are indicated as available
10 when a first group of said reconstructed samples only adjacent to a top edge of a current luma sub-block of said current macroblock is available and a second group of said reconstructed samples only adjacent to a left edge of said current luma sub-block is not available and (ii) an intra 4 x 4 prediction mode 8 is indicated as
15 available when said first group of said reconstructed samples only adjacent to said top edge of said current luma sub-block is not available and said second group of said reconstructed samples only adjacent to said left edge of said current luma sub-block is available.

15. (CURRENTLY AMENDED) The method according to claim 14, wherein the step (B) further comprises:

generating an intra predicted luma sub-block according to ~~an~~ said intra 4 x 4 prediction mode 3 in response to (i) ~~a~~ said first group of said reconstructed samples adjacent to a top edge of said current luma sub-block being available and (ii) both said first group and ~~a~~ said second group of said reconstructed samples adjacent to ~~a~~ said left edge of said current luma sub-block being available.

16. (CURRENTLY AMENDED) The method according to claim 14, wherein the step (B) further comprises:

generating an intra predicted luma sub-block according to ~~an~~ said intra 4 x 4 prediction mode 7 in response to (i) ~~a~~ said first group of said reconstructed samples adjacent to ~~a~~ said top edge of said current luma sub-block being available and (ii) both said first group and ~~a~~ said second group of said reconstructed samples adjacent to ~~a~~ said left edge of said current luma sub-block being available.

17. (CURRENTLY AMENDED) The method according to claim 14, wherein the step (B) further comprises:

generating an intra predicted luma sub-block according to ~~an~~ said intra 4 x 4 prediction mode 8 in response to (i) ~~a~~ said

5 ~~first~~ second group of said reconstructed samples adjacent to a said
left edge of said current luma sub-block being available and (ii)
both said ~~first~~ second group and a ~~second~~ said first group of said
reconstructed samples adjacent to a said top edge of said current
luma sub-block being available.

18. (CURRENTLY AMENDED) The method according to claim
14, wherein the step (B) further comprises:

generating one or more control signals indicating
availability of each of said intra 4 x 4 prediction modes 3, 7 and
5 8 in response to availability of said reconstructed samples
adjacent to said current macroblock.~

19. (ORIGINAL) The method according to claim 18, wherein
the step (B) further comprises:

enabling intra 4 x 4 prediction modes 3 and 7 in response
to said one or more control signals indicating said available
5 reconstructed samples being adjacent to a top edge of said luma
sub-block; and

enabling intra 4 x 4 prediction mode 8 in response to
said one or more control signals indicating said available
reconstructed samples being adjacent to a left edge of said luma
10 sub-block.

20. (CURRENTLY AMENDED) The method according to claim 14, wherein the step (B) further comprises:

determining a position of a top edge and a left edge of said current luma sub-block.

21. (CURRENTLY AMENDED) The method according to claim 20, wherein the step (B) further comprises:

determining availability of a plurality of reconstructed samples in a line adjacent to said top edge of said current luma sub-block; and

determining availability of a plurality of reconstructed samples in a line adjacent to said left edge of said luma sub-block.

22. (CURRENTLY AMENDED) The method according to claim 21, further comprising the steps of:

providing an indication that a diagonal down-left prediction mode and a vertical-left prediction mode are available in response to said plurality of reconstructed samples in said line adjacent to said top edge of said current luma sub-block being available;

providing an indication that a horizontal-up prediction mode is available in response to said plurality of reconstructed

10 samples in said line adjacent to said left edge of said current
luma sub-block being available; and

providing an indication that at least said diagonal down-
left prediction mode, said vertical-left prediction mode and said
horizontal-up prediction mode are available in response to said
15 plurality of reconstructed samples in said line adjacent to said
top edge of said current luma sub-block and said line adjacent to
said left edge of said current luma sub-block being available.

Please add the following new claim:

23. (NEW) A computer readable medium comprising computer
executable instructions for causing a computer to perform the
method according to claim 14.

24. (NEW) The apparatus according to claim 9, wherein
said control circuit comprises:

a plurality of first logic gates configured to generate
a first control signal in response to (i) said first group of said
5 reconstructed samples being available and (ii) both said first
group and said second group of said reconstructed samples being
available; and

a plurality of second logic gates configured to generate
a second control signal in response to (i) said second group of
10 said reconstructed samples being available and (ii) both said first

group and said second group of said reconstructed samples being available.